



Laboratory supporter  
Safety monitor  
Gas detector

Application Introduction

# Gas detection solution for research facility safety management

Working site multi gas detection ※ Request product catalogs for more detailed information

Portable Gas Monitor

Model : **GX-3R**  
Diffusion  
Ex proof



O<sub>2</sub> H<sub>2</sub>S CO HC or CH<sub>4</sub>

● **GX-3R**, portable gas monitor which can detect 4 species of gas, combustible gas, O<sub>2</sub>, H<sub>2</sub>S and CO. **The tiniest and lightest 4 gases monitor in the world!**

(According to our investigation up to Nov 2018.)

Size: approx. 58(W)×65(H)×26(D)mm

Weight: approx. 100g

● **GX-3R Pro**, 1 additional gas detectable!

+1 gas species: SO<sub>2</sub>, CO<sub>2</sub>

More gas detection coming soon!

● **GX-3R Pro**, 11 languages display available!

日本語, English, русский, Español, le français, Italiano, Português, Deutsch, 简体中文, 繁体中文, 조선말  
For worldwide use!

● By equipped with protect cover(optional), **a tough design even falling from a height of 7m!**



Portable Gas Monitor

Model : **GX-3R Pro**  
Diffusion  
Ex proof



O<sub>2</sub> H<sub>2</sub>S CO HC or CH<sub>4</sub>

SO<sub>2</sub> CO<sub>2</sub>

Working site single gas detection ※ Request product catalogs for more detailed information

Personal Single Gas Monitor

Model : **03 series**  
Diffusion  
Ex proof



HC or CH<sub>4</sub> O<sub>2</sub> H<sub>2</sub>S CO



Model : GP-03 (combustible gas)  
Model : OX-03 (O<sub>2</sub>)  
Model : HS-03 (H<sub>2</sub>S)  
Model : CO-03 (CO)

● Tiny size, light weight gas detector

Dimension: 54(W)×67(H)×24(D)mm  
Weight: approx. 80g

● **No interference to workers!**

Well designed, prevention from falling or dragging

Pocket wearable



● Dust / water protection, **designed to IP67**,

can be used in a rain or dust

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※ The information in this catalog may be changed without notification.

# Total Support for Research Facility Safety Management with Riken Keiki





# Essential gas detectors for various research facility application

## Hidden dangers in research facilities

Since various gases are used in research facilities, combustible gas or toxic gas may be formed by many reactions. It is hazardous that explosion, fire, poisoning, oxygen deficiency accident occur by those gases. It is essential to protect workers working at those places from dangerous gases.

We, Riken Keiki will give our best solution for safety management.



## For chemical risk assessment

### Common features of PID (Photoionization) sensor equipped gas detectors

- Detection at a ppm/ppb level TLV ⇒ Easily detection for an administrative concentration
- Digital display for results ⇒ Unmistakable result display
- Data logger ⇒ Easily data management with PC

Portable Multi Gas Detector  
Model :

**GX-6000**

- H<sub>2</sub>S CO O<sub>2</sub> HC or CH<sub>4</sub>
- NO<sub>2</sub> NH<sub>3</sub> HCN Cl<sub>2</sub> CO<sub>2</sub>
- SO<sub>2</sub> VOC PID



- **Max 6 gas species** (combustible gas, O<sub>2</sub>, H<sub>2</sub>S, CO, toxic gas, VOCs) concentration monitor and display!
- With PID (Photoionization) sensor equipped, **700 species of VOCs detectable with 1 equipment!**
- **Multi language selectable!** 日本語, English, русский, le français, Italiano, Português, Deutsch, 조선말
- Dimension: 70(W) × 201(H) × 54(D)mm  
Weight: approx. 500g



【Specifications】 ※ Request product catalogs for more detailed information

Model	GX-6000	
Target gas	Combustible gas / O <sub>2</sub> / toxic gas / VOC and etc.	
Sensor	New-ceramic catalytic method (HC/CH <sub>4</sub> ) Membrane type Galvanic cell method (O <sub>2</sub> ) Potentiostatic electrolysis method (H <sub>2</sub> S/CO) Photo-ionization detector (PID) (VOC)	
Detection range (Service range)	Based on the target gas	
Warning value	Based on the target gas	
Sampling	Pumped in	
Alarm mode	Gas alarm / fault alarm / others 【panic / man down (optional)】	
Mode	Gas alarm	Lamp flash / continuous modulating buzzer / gas concentration display blinking / vibration
	Fault alarm	Lamp blinking / intermittent buzzer / error detail display
	Others	Lamp flash / continuous modulating buzzer
Ex / water proof	Intrinsically safe (Exia II CT4X) / designed to IP67	
Certifications	TIIS ATEX IECEx CE	
Power supply	AA batteries × 3 or Li-ion battery unit	
Duration	Li-ion battery unit : 14 hours (fully charged) AA batteries : 8 hours (using new batteries)	
Dimensions & weight	70 (W) × 201 (H) × 54 (D) mm (without protrusion) With Li-ion battery unit : 500g With AA batteries : 450g	
Temperature & humidity	-20 ~ +50 °C Under 95 %RH (no condensing)	



# Gas detection solution for research facility safety management

## Working site Multi Gas Detection ※ Request product catalogs for more detailed information

Intelligent gas monitor

Model :

**GD-70D**

Combustible Toxic O<sub>2</sub>

Pumped



- **Universal designed!**  
With compatible sensor unit, whatever detection method you use, **you can change your detection gas easily by only replacing the sensor unit.**

Change the target gas easily only by replacing sensor unit



- **Various communication compatible!**  
Besides standard analog 4-20 mA method, DC power line communication and Ethernet method are also available.  
**Choose your best communication method!**

- **Easy to read large LCD display!**  
Gas species, concentration, bar graph, alarm point displayed.  
**All information with one sight.**



- **Dimension: 70(W) × 120(H) × 145(D)mm**  
**Weight: approx. 0.9kg**

Indoor gas monitor

Model :

**OX-600**

O<sub>2</sub>

Diffusion



- **3-colored LCD display!**  
The backlight color will turn into green, orange, red color by the current condition.  
**Can be clearly recognized in the distance.**



Green: Standard mode



Orange: Attention mode



Red: Warning mode

- **Remote sensor available!**  
By using optional remote sensor (with extend cable), **oxygen concentration from distant place can be detected.**

- **3 types of power supply!**  
「AC power」 「DC power」 「Battery」  
3 power supply types available.  
**Choose a suitable power supply to fit the current place.**

- **Dimension: 80(W) × 120(H) × 35.5(D)mm**  
**Weight: approx. 230g**

PID fixed VOC detector

Model :

**RVOC**

PID Toxic VOC

Diffusion

Ex proof designed



- **Photoionization detector (PID) equipped,** best detector for VOCs (volatile organic compounds) detection.  
A fixed type detector which can **detect VOCs continuously.**

- **3 detection range!**  
Detection range can be selected as 0 ~ 10/100/1000ppm.  
**Detection range can be changed easily to meet your demand.**

- **Various effective function available**  
**With 4-20mA output can be easily built into the control system.**

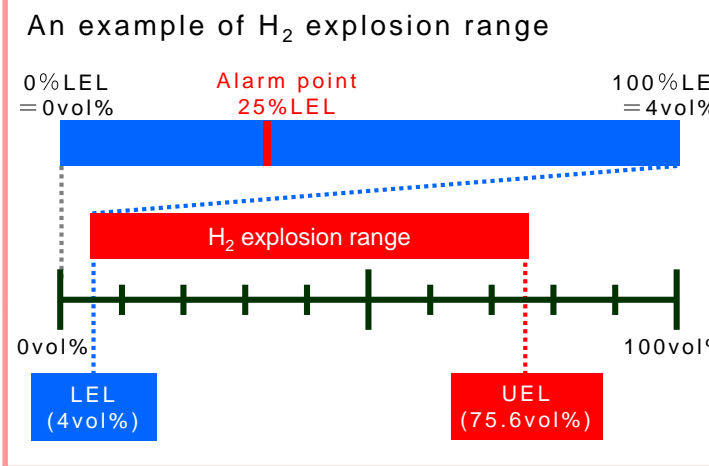
- **Dimension: 126(W) × 188(H) × 78(D)mm**  
**Weight: approx. 1.4kg**

## Various hazardous gas emitted during the research operation

### Danger of combustible gas

**Combustible gas** ※, which is possibly combust with oxygen (air) at a certain concentration level. When there is a fire source nearby, a serious explosion accident may occur. The lowest concentration level is called lower explosion level (LEL), the highest concentration level is called upper explosion level (UEL).

※According to the High Pressure Gas Safety Act, combustible gas is defined as following:  
 · LEL of which is below 10 %  
 · The difference between LEL and UEL is above 20 %  
 The alarm point of combustible gas should be set under 1/4 of LEL.

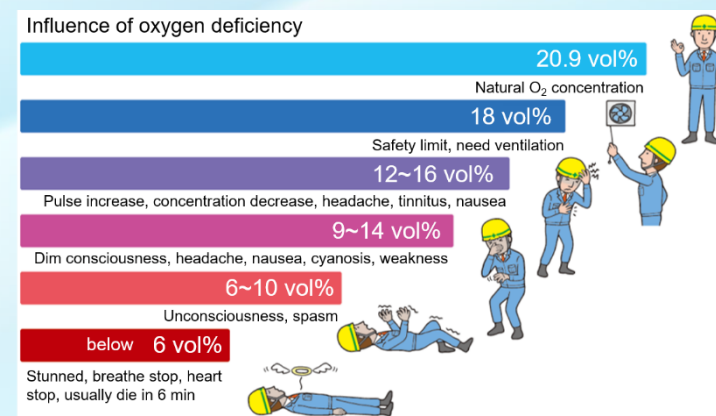


### Danger of Oxygen deficiency

**Oxygen deficiency:**

O<sub>2</sub> concentration below 18 %.

O<sub>2</sub> is usually contained of 20.9 vol% in air. Which below 18 vol% (safety limit) may cause serious problems to our health. Additionally, those who go to help the workers that faint due to the oxygen deficiency might also fall because of the lack of oxygen.



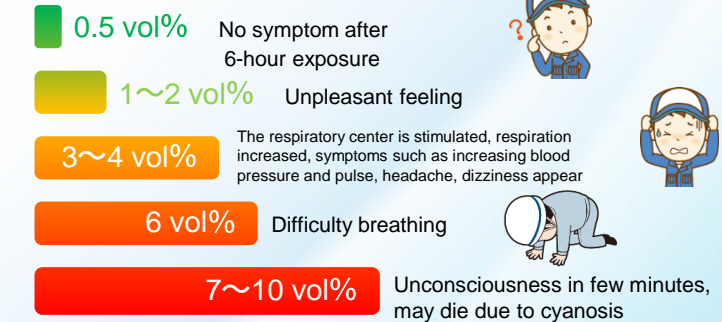
### Danger of toxic gas

Toxic gas, is a kind of hazardous gas which is listed in the Poisonous and Deleterious Substances Control Act. In Japan, according to the High Pressure Gas Safety Act, the alarm point of toxic gas should be under administrative level.

### Danger of CO<sub>2</sub> poisoning

The administrative level of CO<sub>2</sub> (safety concentration after exposure for 8h/day, 40h/week) is under 5000ppm. When exposed under over 5000ppm, many symptoms may appear to our body, even fetal accidents may occur.

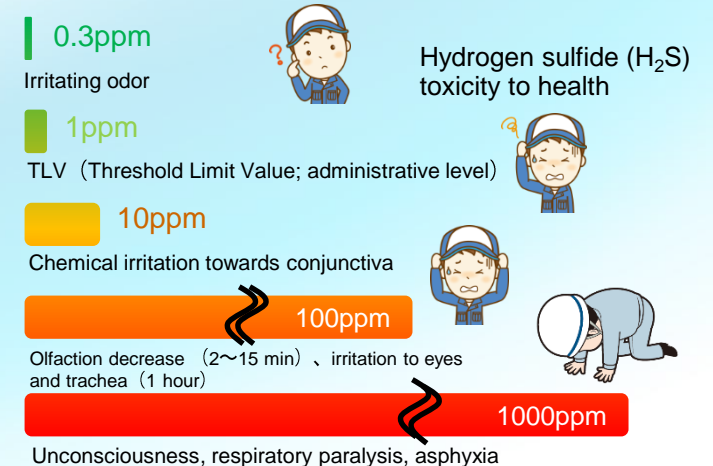
Influence towards human body by CO<sub>2</sub>



※ According to the Canadian Exposure Guidelines for Residential Indoor Air Quality, safety concentration should be under 3500ppm (CO<sub>2</sub>).

### Danger of H<sub>2</sub>S toxicity

Hydrogen sulfide (H<sub>2</sub>S) is a kind of highly toxic gas which holds a extreme low administrative level below 1 ppm. It is very dangerous when the concentration of H<sub>2</sub>S over 1000 ppm, which may cause a fatal accident to those employers work around.



# Solution from Riken Keiki, Total Safety Support for University Laboratory

【Main application and available detectors】 (example)

## Gas monitoring for working sites ⇒ page 6

Intelligent gas detector  
Model :

**GD-70D**



Indoor oxygen monitor  
Model :

**OX-600**



PID fixed VOC detector  
Model :

**RVOC**



## Gas detection around workers ⇒ page 8

Portable Personal Monitor  
Model :

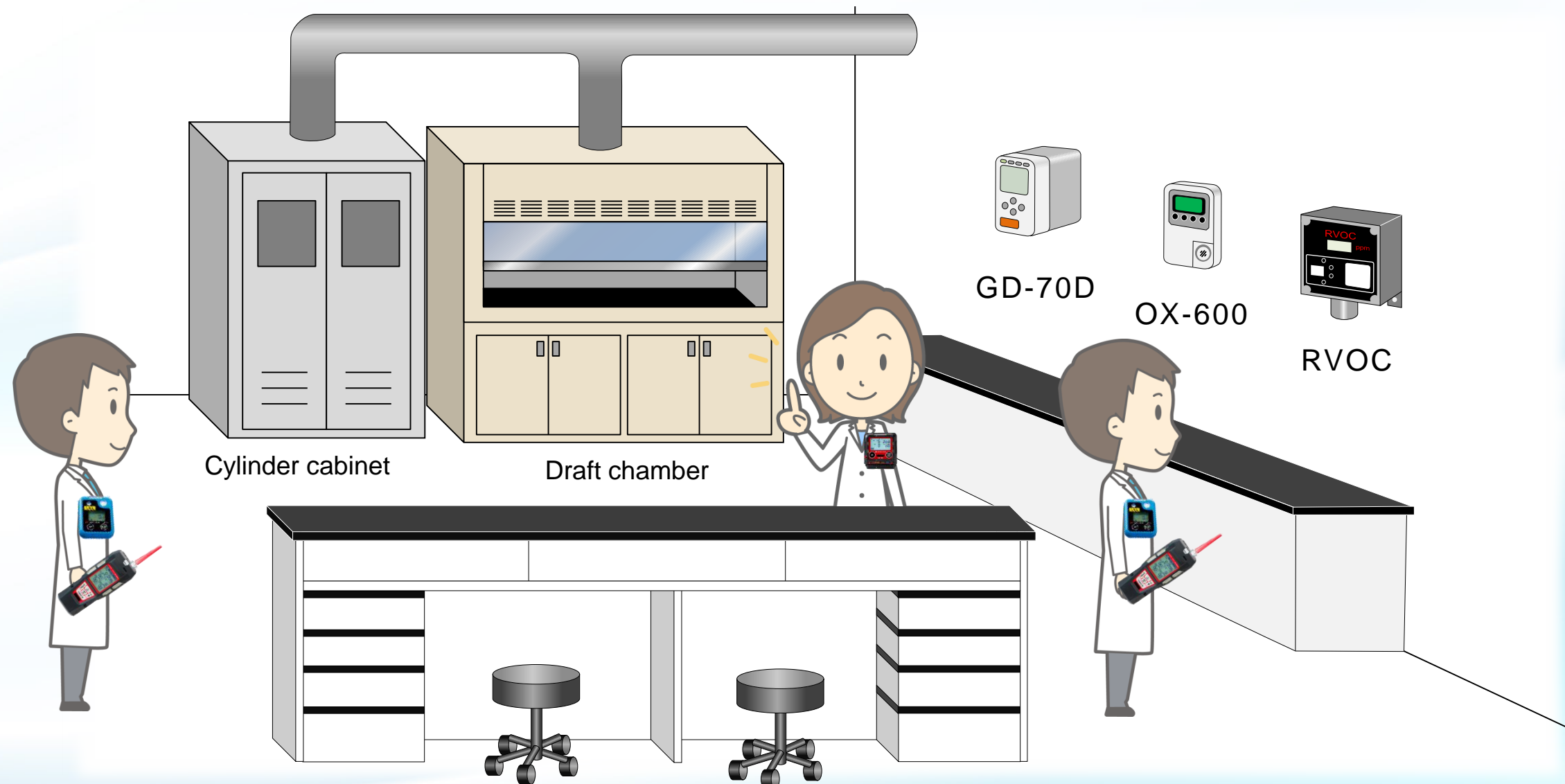
**GX-3R Pro**



**GX-3R**

Personal single gas monitor  
Model :

**03series**



## For chemical risk assessment

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Portable Multi Gas Detector  
Model :

**GX-6000**

